

1 **Amendment to the Specification**

2 **In the Specification:**

3 Please amend the specification as follows:

4 On Page 27, the paragraph beginning at line 23 should be replaced with the following.

5
6 As indicated by functional blocks 54 and 84 of FIGURES ~~1 and 2~~ 1A and 1B, respectively,
7 other techniques can be used to provide a position sensor that can be integrated into a small area such
8 as less than 3 mm. For example, light loss can be measured from waveguide bending. All
9 waveguides lose light from their cores to the outside environment. In addition, a scanning waveguide
10 also loses light to the environment in proportion to the deflection of the waveguide. This
11 proportional loss is called bending loss. A device such as a photodetector or photodetector array that
12 detects the quantity of light lost from the waveguide in proportion to the waveguide's motion can
13 therefore measure the free end position of the waveguide. In ~~the field of~~ near field scanning
14 microscopes (NSOM), nanometer displacements of the tip of a waveguide are measured by
15 introducing a beam of light that crosses the path of the actuated waveguide. Displacements along one
16 axis is measured in relation to light loss or to light scatter in transmission through a waveguide or
17 back to a nearby detector[,,]. Examples of the use of a laser diode and a photodiode in transmission
18 for one axis are described by R. D. Grober, T. D. Harris, J. R. Tautman, and E. Betzig (1994), Design
19 and implementation of a low temperature near-field scanning optical microscope, *Rev. Sci. Instrum.*
20 65(3): 626-631, and A. Shchemelinin, M. Rudman, K. Lieberman, and A. Lewis, (1993), A simple
21 lateral force sensing technique for near-field micropattern generation, *Rev Sci Instrum.*, 64(12):3538-
22 3541. An example of the use of an optical source and a detector in reflection mode from a vibrating
23 cantilever is described by H. Muramatsu, N. Chiba, K. Homma, K. Nakajima, T. Ataka, S. Ohta, A.
24 Kusumi and M. Fujihira (1995), Near-field optical microscopy in liquids, *Apl. Phys. Lett.* 66(24):
25 3245-3247. Optical detection of waveguide motion can be extended in 2-axes by implementing the
26 single axis measurement in the orthogonal direction.